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Der Präsident des Europäischen Patentamts;
Im Auftrag

For the President of the European Patent Office

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Blatt 2 der Bescheinigung
Sheet 2 of the certificate
Page 2 de l'attestation

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Hair colorant composition

The present invention concerns a hair colorant composition comprising phytantriol.

Phytantriol is chemically identified as 3,7,11,15-tetramethyl-1,2,3-hexadecanetriol and commercially available from F. Hoffmann-La Roche.

5 US Patent 5,776,443 describes a hair care composition comprising 0.001-1wt% of phytantriol; 0.001-10 wt% of a silicone compound; and a carrier.

US Patent 5,834,013 describes a cosmetic or dermatological composition in the form of an aqueous and stable dispersion of cubic gel particles based on phytantriol and use thereof for hydrating the skin. Said composition essentially comprises: (a) from 0.1 to 15%
10 by weight of phytantriol, and (b) from 0.1 to 3% by weight of a dispersing and stabilizing agent, e.g. Tween 20.

The above mentioned Patent Publications do not mention any effect of phytantriol concerning the wash-out properties of hair dyes.

It has now been found that the addition of phytantriol to a hair colorant composition
15 tion significantly improves the wash-out properties of the hair dye.

Accordingly, the present invention concern a hair colorant composition comprising from about 0.1 to about 5 % by weight of phytantriol, preferably from about 0.2 to about 1% by weight;
from about 0.1 to about 3% by weight of a dispersing agent, preferably from about 0.1 to
20 about 1 % by weight; and

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from about 0.1 to about 5 % by weight of a dye, preferably from about 0.1 to about 1 % by weight.

Suitable dispersing agents are e.g. selected from:

- (1) polyol alkyl or alkenyl ethers or esters,
- 5 (2) N-acylated amino acids and derivatives thereof and N-acylated peptides with an alkyl or alkenyl radical, and salts thereof,
- (3) alkyl or alkenyl ether or ester sulfates, and derivatives and salts thereof,
- (4) polyoxyethylenated alkyl or alkenyl fatty ethers or esters,
- (5) polyoxyethylenated alkyl or alkenyl carboxylic acids and salts thereof,
- 10 (6) N-alkyl or N-alkenyl betaines,
- (7) alkyltrimethylammonium or alkenyltrimethylammonium and salts thereof, and mixtures of the above dispersing agents.

In the compounds listed above, the alkyl and alkenyl radicals have from 8 to 22 carbon atoms.

- 15 Preferred dispersing agents are polyol alkyl or alkenyl ethers or esters. Among these, there may in particular be mentioned sorbitan alkyl or alkenyl esters polyoxyethylenated with at least 20 units of ethylene oxide, such as sorbitan palmitate 20 EO or Polysorbate 40 marketed under the tradename Montanox 40 DF by the company Seppic, and sorbitan laurate 20 EO or Polysorbate 20 marketed under the tradename Tween 20 by the company
- 20 ICI. Especially preferred is Tween 20.

- Examples of suitable dyes include e.g. anthraquinone dyes, especially those containing a dialkylaminoalkylamino (DAAA) group. Specific examples include the following compounds available under the trademark ARIANOR® from Warner Jenkinson Ltd.: ARIANOR Straw Yellow, ARIANOR Mahogany, ARIANOR Steel Blue, ARIANOR Madder
- 25 Red, ARIANOR Ebony and ARIANOR Sienna Brown.

However any other semi-permanent hair dye may be used. For example direct hair dyes such as those commercially available under such tradenames as Irgalan, Cibalan, Vialon, Ortalan and Capracyl dyes. Natural direct dyestuffs, such as Henna, Camomile, Madder root, Sandalwood or Walnut, may also be used.

- 30 The hair coloring composition may further contain conventional components of hair coloring formulations, e.g. surfactants, conditioners, thickeners, perfume and/or preservatives.

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The formulation may for example be in the form of a liquid, a gel or a mousse. Specific examples of such formulations include a shampoo, a conditioner, a styling mousse, a styling spray, a styling gel, a conditioning styling gel, or a gel mousse. A shampoo formulation may contain an amphoteric surfactant, a thickener, a conditioning agent, a sequestrant (to remove heavy metals), a hair colorant composition according to the invention, a preservative and deionized water.

The composition according to the invention may be applied to the hair by conventional techniques used in this art. e.g. with a brush, sponge, or other means of contact, such as pouring the composition directly onto the hair until saturated and/or manually massaging or working through the hair.

The advantages and characteristics of the present invention will be apparent from the examples presented below.

Example 1

Preparation of the hair colorant composition

0.2 g Phytantriol was dissolved in 0.8 g dispersing agent (Tween 20) and this mixture was added to 99.0 g of a 0.5% solution of the hair dye.

Example 2

The coloring composition was applied to approximately 10 cm long hair swatches for 10 minutes. The hair swatches were then washed with water and allowed to dry in the air. This cycle was repeated 5 times and 10 times.

Example 3

Color measurement

Hair colorant compositions containing 0.1 wt% or 0.2 wt% phytantriol have been prepared according to Example 1 and applied according to Example 2.

Hair colors may be defined using the luminance (L), according to the colorimetric (L,a,b) coordinate system of the C.I.E (Comite International de l'Eclairage International Lighting Committee).

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In this color measurement method the color along three mutually perpendicular axes is measured photometrically and the color differences between the initial sample of hair before washing and the samples after 5 and 10 washes are compared.

The difference between the two samples in the CIELAB space is given by

$$5 \quad \Delta E = \sqrt{\Delta (\Delta a)^2 + (\Delta b)^2 + (\Delta L)^2}$$

ΔE is the color difference

Δa is the color difference along the a axis

Δb is the color difference along the b axis

Δc is the color difference along the c axis

10 The following Table shows the results:

ARIANOR dye	% Phytantriol	ΔE after 10 washings
A. Straw Yellow	0	16.7
	0.1	15.5
	0.2	12.7
A. Mahogany	0	15.7
	0.1	15.4
	0.2	4.2
A. Steel Blue	0	27.0
	0.1	25.2
	0.2	14.3
A. Madder Red	0	35.8
	0.1	34.4
	0.2	20.7

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A. Ebony	0	23.7
	0.1	23.4
	0.2	9.9
A. Sienna Brown	0	17.0
	0.1	16.9
	0.2	9.6

The above table clearly shows that the hair dye is more wash resistant when the hair dyeing treatment has been done using a hair colorant compositions containing phytantriol, especially in an amount of at least 0.2 wt%.

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61Claims

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1. A hair colorant composition comprising
from about 0.1 to about 5 % by weight of phytantriol, preferably from about 0.2 to about
1% by weight;
- 5 from about 0.1 to about 3% by weight of a dispersing agent, preferably from about 0.1 to
about 1 % by weight; and
from about 0.1 to about 5 %by weight of a dye, preferably from about 0.1 to about 1 % by
weight.
2. A hair colorant composition according to claim 1, wherein the dispersing agent is a
10 polyol alkyl or alkenyl ether or ester.
3. A hair colorant composition according to claim 2, wherein the dispersing agent is
Tween 20.
4. A hair colorant composition according to any one of claims 1 to 3, wherein the dye is
a anthraquinone dye.
- 15 5. A hair colorant composition according to claim 4, wherein the dye is ARIANOR
Straw Yellow, ARIANOR Mahagony, ARIANOR Steel Blue, ARIANOR Madder Red,
ARIANOR Ebony or ARIANOR Sienna Brown.
6. The use of phytantriol in a hair colorant composition according to any one of claims
1 to 5 to improve the wash-out properties of dyed hair.

Abstract

The present invention concerns a hair colorant composition comprising
from about 0.1 to about 5 % by weight of phytantriol, preferably from about 0.2 to about
1% by weight;

- 5 from about 0.1 to about 3% by weight of a dispersing agent, preferably from about 0.1 to
about 1 % by weight; and
from about 0.1 to about 5 %by weight of a dye, preferably from about 0.1 to about 1 % by
weight.

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